STATISTICAL REQUIREMENTS OF ECONOMIC PLANNING*

by

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When statisticians gather together, it is usually to celebrate a conquest. By this I mean not only the widespread penetration of your discipline and profession into almost every conceivable field of knowledge, from economics and sociology to biology and psychology — fields in which statistical inquiry and analysis are necessary for enhancing the rigor and precision of their methods and their conclusions. I refer more to the practice, in technical conventions like this, of presenting papers that advance or refine the theory and methods of statistics, or present the results of some empirical statistical studies. My own topic, I am afraid, will be somewhat more primitive. For one thing, one is never in a scientific mood after lunch. For another, I think there is, at this stage, a strong case for talking simply of **raw data**: the availability of various types of statistical material in relation to the requirements of planning and policy-making.

For the ten past months we have have been engaged in the exercise of implementing a long-term economic development program. This may be divided into two time-phases. The first is the immediately feasible task of launching projects that have already been prepared and which are ready to go. This, in fact, has constituted most of the efforts devoted so far to the implementation of the President's program. The second task is the more basic and necessarily longer-term enterprise of formulating new sectoral programs and designing new specific productive projects that would provide the bridge between the

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capabilities of our natural and manpower resources and the material requirements of our population.

I need not elaborate on the fact that the systematic design of optimum programs and projects for the future demands a fairly solid body of statistical material, both on the physical and organizational structure of our economy and on the behavior and movements of critical variables within and without our economy. But one of the facts with which we have collided in the process of our work is that the existing body of statistical material, and the existing machinery and procedures for data collection do not correspond to the requirements of development planning. There are large and critical gaps in our supply of statistics which will have to be filled in the near future. The design of economic programs and projects must thus be accompanied simultaneously by a program for the enrichment of our existing body of statistics, and some reorientation of our collection processes.

I have a somewhat naive theory — for which I confess I have no statistical proof — that the development and growth of any country is reflected by two somewhat unconventional indicators. The first indicator is the growth of the statistical profession itself, as reflected, let us say, in the size and vigor of a professional society like this. A primitive country, I think you will agree, has no use for statisticians, except perhaps in some really underdeveloped societies where they are items for consumption, assuming there are no U. N. dieticians around! Although it is not a conclusive evidence, the growth of the statistical profession is a mirror of the increasing scientific sophistication of society, and it is a sanguine sign of the presence of people whose work and analytical discipline are essential to to the process of promoting economic growth.

The second unconventional indicator of economic growth are the amount and the depth of statistical compilations available. The richness and the composition of the body of statistics available in any country, according to the little theory I propose, are in themselves a revealing indicator of the country's

stage of development. Contrast, for instance, the sheer abundance of refined statistics available in a country like the United States with the almost total absence of reliable data in some Asian or African countries which have only recently been exposed to the winds of development.

Let us pursue this vein a little bit further, and offer some further postulates. Just as a country goes through various stages of economic development, in quite analogous fashion its available corpus of statistics goes through its own sequence of development, the latter keeping in step with the former. In the early stage of its own growth a country normally concentrates in trade, particularly in commercial relations with other nations or kingdom: the value-added from trade is a large proportion of a nation's total product. This is why among the earliest available statistical records in the West are figures on foreign trade, specifically on imports, exports, and the movements of bullions. These records were diligently collected first of all because they were the basis for collecting customs revenues for the kingdom, and secondly because they kept tab of the inflows and outflows of precious metals, which in the past were considered the ultimate forms of wealth.

In a growing country, the relative importance of trade diminishes in favor of an increase in output itself. This development, again, is reflected in the statistical compilations being made by responsible agencies. The increasing prominence of what we now call the national income and product accounts is a reflection of the fact that the nation's primary attention has shifted from trade to production. At this stage the emphasis in the Philippines is on aggregative figures, and the sampling methods and collection processes are so designed as to arrive at totals rather than regional figures. Thus, we have figures on national incomes and products rather than regional incomes and products; national imports, exports, and external payments and receipts, rather than regional imports, exports, and external payments and receipts; figures on the total number of farmers served by irrigation, but which cannot be reduced to specific regions; figures on the money supply and credit

outstanding, but none on the intersectoral or interregional flow of funds.

Yet we have reached a stage where our statistical compilations will have to go deeper than the aggregates and reflect the status, activities, and interrelations of regions. Admittedly there are, either readily at hand or buried in the dusty files of our various agencies, considerable deposits of data on regions, provinces, and even local communities. But when put together, they form at best a loose and not-entirely consistent collection, rather than a coherent framework to serve as a basis for planning and programming. Thus, as part of our socio-economic program we shall have to reorient, to broaden the base and to deepen the scope of the statistical work being carried on by our different agencies.

The direction which our statistical improvement program will take will arise from the nature of the principal task which constitute the implementation of our economic development program. In general, an economic plan seeks to fulfill the following tasks:

(a) to increase the production of specific commodities which have been given a high priority under the program;

(b) to increase the people's levels of consumption, that is to say, their levels of welfare;

(c) to increase and facilitate the physical flow of commodities from region to region; and

(d) as an indispensable part of all these processes, to increase and facilitate the flow of finance from saving sectors to investing sectors, and from regions with surpluses of funds to regions with deficiencies.

The pursuit of these aims dictates a set of major statistical requirements that have to be made available as a basis for setting up the implementing programs and projects under the over-all plan. Our supporting statistical program will have to contain the following features.

The first set of data required has to do with the measurement and classification of resource capabilities in the various regions of the country. This includes a comprehensive and detailed picture of land use and soil capabilities throughout the country, marine resources, population and manpower skills, and the existing fixed capital investments all over the country: factories of all types, farm improvements, and power and public works facilities, including their locations, their conditions, their actual capacity of operations, the efficiency of their maintenance, and the technical links that exist among them. A measurement of the resource capabilities as well as existing capital facilities is the proper starting point for future project work, since these give an indication of the existing productive capacity of the country, on the one hand, and of the potential increses in production, given the right types of future investments.

These data are essential. The development and implementation of sound, concrete and rewarding projects cannot be conceived except in terms of specific **locations**, and in terms of what facilities and capabilities already exist **where.** Assume, for instance, that the increase in the production of rice by some stated amount over a number of years is one prime objective of the socio-economic program, as indeed it is. Then the prime rice lands will have to be identified, and the possible incremental yields from these lands determined. Next, the existing irrigation facilities are examined in those lands, as are the ongoing agricultural extension programs, fertilizer and seeds distribution programs, storage and marketing facilities, financial sources, and so on. On the basis of these, one can pinpoint to what extent the production targets can be met simply by improvements in existing fixed facilities and assistance programs, and to what extent **new** project development work is necessary, say in irrigation, in extension, and in augmenting the sources of finance in the region. Even more, where the area under study is devoted to the production of let, us say, fruit, then the possibilities of a processing and canning factory in the vicinity can be exploited, and the necessary public overhead support, like roads, water and power, can be planned and designed.

A position picture of our resources, our existing capital, and our inventories of various commodities is thus necessary for the development of specific programs and projects that are concretely related to their optimum locations. But such a position picture must be complemented by statistical data on certain important flows. The first of this is production. By this I mean not simply the aggregate value or quantum of the nation's output but an accurate breakdown of these totals into specific commodities as identified by the region in which they were produced. Regional production data serve to identify the centers for producing various goods and to point out the directions by which some rewarding exploitation of comparative advantage conditions can be made. Another set of flow data that must be collected is consumption of different goods in various regions. These figures would give an indication of the level of welfare in various places throughout the country and of the differences in welfare among our planning regions.

Since production is ultimately destined for consumption, an economic plan must provide for the efficient flow of trade, that is to say, the smooth flow of goods from sources of raw materials to centers of production and from centers of production to centers of consumption. This is the objective of a transport program. Yet, such a program must be based on some measure of how efficiently our already existing transpot system serves to convey goods from their sources to their destinations. An appraisal of our present transportation system, however, cannot be made with any degree of confidence without some knowledge of interregional commodity flows. The lack of such data is one of the largest gaps in our present body of statistics, and because of the urgency of obtaining this information, the Program Implementation Agency is working together with the Philippine Constabulary in tracing the flow of commodities within the Northern and the Central Luzon areas. The preliminary reports of the survey are now helping us to identify the existing bottlenecks in the transport system in these areas of the country.

A related set of information needed for economic planning

is some regorous indication of the interregional flow of people. Among others, these data would explain the sources of the growth of our population centers, identify the cultural aspects of our growing urban problems, and pinpoint the critical places where the needs for employment opportunities are growing the fastest.

Without going into an infinite enumeration of the statistical requirements of economic planning, I shall mention one more gap in our present body of statistics. I refer to the data that would lend themselves to the constructions of flow-of-funds matrices, both intersectoral and interregional. An intersectoral flow of funds approach has been taken by Dr. Richard Hooley in a pioneering study of saving in the Philippines. But the study is, at best, a first approximation, and further refinements are definitely in order. Such flow data are an excellent indicator of what the sources of savings have been in the past and how the savings of the community have been allocated to what types of investment and through what kinds of financial intermediaries. The implications of statistics of this kind for monetary policy, for measures to mobilize savings, and for the guidance of investment directions are clear enough not to warrant any further elaboration, since time is running short.

Perhaps another useful direction which our statistical compilation can take is toward the construction of interregional flow-of-funds matrices. Such a table could conceivably measure the efficiency of our national payments mechanism and the facility by which funds are channelled from region to region in accordance with availabilities and with the needs of production and trade. Among others, these data could pinpoint the areas where institutional improvements, such as the setting up of financial agencies, are called for.

I have tried to give an idea of the features of a statistical improvement program which we must implement if we have to have the proper data support for our socio-economic program. My general theme has been this: that to give the

necessary degree of rigor and precision to our planning, programming and project development work, our statistical material must go deeper than the aggregate totals now existing and relate the figures to the regions to which they are pertinent. How to go about orienting our nation's statistical gathering machinery to these objectives is a large and separate question in itself. It involves some fairly drastic revision in procedures as well as in the organization of our official and semi-official gathering agencies. Here, we are still in search of answers, and we would appreciate receiving yours.

COMING SOON

The U.P. Statistical Center announces the forthcoming publication of Dr. Tito A. Mijares' **Percentage Points of the Sum of s Roots (s = 1 — 50): a unified table for testing univariate hypotheses of various types.**

The book consisting of about 250 pages contains a new set of tables that are presently unavailable in the current literature. This timely publication is expected to fill an important gap in the unification of treatment of various types of hypotheses testing common in the statistical analyses of univariate and multivariate data. A comprehensive account of the distribution theories under the various null hypotheses is given in the introduction, with numerical examples in each case that users in both the academic and non-academic fields will find highly useful.

The price is tentatively set at ₱24.00 U. S. (or $8.00 including postage) per cloth-bound copy. Members of the Philippine Statistical Association are entitled to a 20 per cent discount. Orders and further inquiries may be addressed to:

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